

**MINUTES
of the
SECOND MEETING
of the
SCIENCE, TECHNOLOGY AND TELECOMMUNICATIONS COMMITTEE**

**July 6-7, 2015
Rotunda Room, University of New Mexico Science and Technology Park
801 University Boulevard
Albuquerque**

The second meeting of the Science, Technology and Telecommunications Committee (STTC) was called to order by Representative James E. Smith, chair, on Monday, July 6, 2015, at 10:12 a.m. in the Rotunda Room at the University of New Mexico (UNM) Science and Technology Park in Albuquerque.

Present

Rep. James E. Smith, Chair
Sen. Michael Padilla, Vice Chair
Rep. Stephanie Garcia Richard
Sen. Daniel A. Ivey-Soto (7/6)
Rep. Conrad James
Rep. Bill McCamley (7/7)
Sen. Bill B. O'Neill
Rep. Debbie A. Rodella (7/7)
Sen. John C. Ryan (7/7)
Rep. Carl Trujillo
Rep. John L. Zimmerman

Advisory Members

Sen. Jacob R. Candelaria
Sen. Carlos R. Cisneros
Rep. Kelly K. Fajardo (7/7)
Sen. Richard C. Martinez
Sen. Nancy Rodriguez
Rep. Luciano "Lucky" Varela
Rep. Monica Youngblood (7/7)

Guest Legislator

Rep. Tim D. Lewis (7/7)

Absent

Sen. William F. Burt
Rep. Jason C. Harper

Sen. Ron Griggs
Rep. Antonio Maestas
Sen. Steven P. Neville
Sen. Mary Kay Papen
Sen. William H. Payne
Rep. Nick L. Salazar
Sen. Peter Wirth

(Attendance dates are noted for members who did not attend the entire meeting.)

Staff

Gordon Meeks, Legislative Council Service (LCS)
Taylor Smith, LCS
Alex Tapia, LCS

Guests

The guest list is in the meeting file.

Handouts

Handouts and other written testimony are in the meeting file and are located on the New Mexico Legislature web site.

Monday, July 6

Members of the committee introduced themselves.

Welcome to UNM

Chaouki Abdallah, provost and executive vice president for academic affairs, UNM, welcomed the committee to the university. Mr. Abdallah provided the committee with information regarding student demographics. UNM spans the academic spectrum with fields of study from liberal arts to law and medicine. Science and technology are growing strengths of the university, with UNM competing for research grants from the federal government and military. UNM ranks as one of the top 60 research universities in the country. Mr. Abdallah stated that while there is a need for more science, technology, engineering and mathematics (STEM) majors, there is a need for people who understand STEM. New Mexico is consistently losing graduates to other states because of the lack of opportunities in STEM fields within the state. Mr. Abdallah believes it is not enough just to graduate students from universities; there needs to be healthy environments created for them to stay in New Mexico to pursue careers.

In response to committee members' questions, the following points were discussed:

- the University of Tennessee model, in which partnerships among the state, universities and national laboratories were established to facilitate research;
- the need for long-term planning and investments for the research institutions in the state;
- graduate retention and career opportunities;
- establishment of a public policy institute;
- collaboration among the state research institutions;
- creation of a student exchange program that allows students to take courses at other state universities that are not offered at their institution; and
- high school graduate preparedness upon entering state universities and the need for remedial courses.

Photonics: A High-Technology Opportunity for New Mexico

Sanjay Krishna, director, Center for High Technology Materials (CHTM), UNM, introduced the committee to the center and the opportunities it holds for the state. The CHTM was established in 1983 with a seed investment of \$10 million over five years by the State of New Mexico. The center's mission includes: promoting research and education in photonics, microelectronics and nanoscale materials, devices and their applications; fostering interactions among UNM, federal laboratories and industry; and promoting an entrepreneurial spirit for economic development in the state. Under the guidance of research faculty and technical staff, students facilitate end-to-end integration from modeling to manufacturing. According to the Bureau of Business and Economic Research at UNM, the CHTM supports 131 jobs with an annual economic output of \$11.7 million. Since the CHTM's inception, the cumulative total impact has been more than \$372 million in economic output from the initial investment by the state. Mr. Krishna highlighted many notable successes of the CHTM and its students, including more than 400 graduates from the program and 158 U.S. patents.

Mr. Krishna explained the field of photonics to the committee. Photonics is the study of light and includes the generation, emission, transmission, modulation, signal processing, switching, amplification and detection/sensing of light. It covers all technical applications of light over the whole spectrum, from ultraviolet through the visible to near-, mid- and far-infrared. Examples of photonics in everyday life include LEDs, fiberoptics, cameras, night vision, solar panels and guidance systems.

The CHTM has recently aligned with several institutions around the country to develop the Integrated Photonics Institute for Manufacturing Innovation. The CHTM will establish a regional hub called Integrated Manufacturing of Mid-Infrared Photonic Applications Technology (IMMPACT). IMMPACT will build membership from local and national industries and develop an efficient administrative structure for public-private partnerships; work toward industry-relevant projects addressing manufacturing challenges; and partner with universities, community colleges and high schools to train the next generation of technicians, scientists and entrepreneurs. The CHTM is requesting \$10 million over the next five years to reinvest in infrastructure and capability in photonics, which will lead to industry-relevant projects and high-paying technology jobs in New Mexico. The funding would also help to attract national industries while growing local technology start-ups with a strong technical and entrepreneurial work force to create a self-sustaining ecosystem. Mr. Krishna noted support from Governor Susana Martinez and Albuquerque Mayor Richard J. Berry. The CHTM is seeking a letter of support from the STTC endorsing this project as the CHTM pursues funding in the upcoming legislative session.

The committee inquired about the following information:

- options for types of funding for the CHTM, including general obligation bonds and the Local Economic Development Act;
- the possibility of using existing facilities, such as the national laboratories, along with the limitations that option would create for the center;

- the establishment of interactive teams between the national laboratories in the state and UNM; and
- the academic component of the center in addition to the manufacturing project and internships available for students.

Senator Padilla made a motion to have LCS staff prepare a letter of support for the program and its funding. The motion was seconded by Representative Zimmerman and passed unanimously. A member requested that the Legislative Finance Committee be included on the letter.

Innovate ABQ Program

Elizabeth (Lisa) J. Kuuttila, president and chief executive officer, Science and Technology Corporation, UNM, provided background on the Innovate ABQ program. In 2012, UNM hosted an economic development summit, which drew leaders from the public and private sectors around the state. Innovate ABQ began taking shape as a way to grow the economy by capitalizing on New Mexico's outstanding scientific research, strong entrepreneurial assets and thriving creative community. What was lacking was a place, or a network of places, for innovations to thrive. In 2013, UNM led visits to national models, including sites at the University of Florida and Arizona State University. After a feasibility study, the Central/Broadway region in Albuquerque was identified as the ideal headquarters for Innovate ABQ. The project quickly gained support and monetary pledges from government entities and other donors. The formation of Innovate ABQ, Inc., was approved by the UNM regents in July 2014. Currently, the Innovate ABQ, Inc., board of directors is composed of 11 members from different sectors of business and government.

Innovate ABQ will serve as a hub for research and innovation that is highly connected with downtown Albuquerque. The site will include office, research, retail, living and restaurant spaces. As part of this program, UNM will be admitting students for the Innovation Academy beginning in the fall of 2015. Special courses are designed to ensure that UNM students have the skills necessary to succeed in a knowledge economy. The curriculum will be geared toward developing soft skills that help graduates become better employees and be more attractive to employers. Ms. Kuuttila noted that UNM will be hosting a follow-up economic development summit on October 26, 2015.

In response to questions from the committee, Ms. Kuuttila covered the following:

- the program received a grant for \$2 million in 2013 from the City of Albuquerque to purchase property; in addition, the New Mexico Educators Federal Credit Union, now called Nusenda Credit Union, pledged \$3 million to the project;
- the Innovate ABQ corridor loosely refers to the area around the site, which does not consist of hard borders;
- concern from potential out-of-state companies about taxes and the education system in New Mexico hindering interest;

- interdisciplinary opportunities for students to design degree programs not limited to a specific college of study, but campus-wide;
- selection of the university as the primary owner of the project to help maintain stability in the face of potential economic and political changes; and
- a framework for the development of the program moving forward.

Secretary of State Information Technology Update

Kari Fresquez, interim elections director/chief information officer, Secretary of State's Office (SOS), provided the STTC with an update regarding improvements to the state's elections and business filing systems. Ms. Fresquez provided an overview of the two initiatives that the SOS is currently working on, along with the current status.

(1) New Mexico Business Filing System:

- consolidated system for all SOS business services;
- SOS business portal — features online transactions and searches;
- \$1.215 million authorized in fiscal year (FY) 2013; and
- estimated to be completed by December 2015.

(2) Integrated Reporting and Integrity System (IRIS):

- will replace the current statewide voter registration system and a number of other disparate election-related software components used by 33 county clerks with one comprehensive system;
- based on a system used in South Dakota; and
- \$1.4 million authorized for FY 2016-17 to complete the project.

Ms. Fresquez detailed for the committee the various problems with the previous systems, the process of addressing those issues and the solutions that the two new systems are providing. While the SOS is already benefiting from IRIS, full implementation will not take place until after the 2016 presidential election. It will include voter registration management, election management, public access, data exchange, National Voter Registration Act of 1933 compliance and enhanced user roles and permissions.

In response to questions from committee members, Ms. Fresquez addressed the following:

- quality assurance during the transition from the old system to IRIS;
- safeguards for voters during "data cleanups";
- addressing the needs of the county clerks for the upcoming national election;
- changes under Senate Bill (SB) 643 (2015) — "Voter Registration Requirements";
- IRIS software protection against disaster recovery and systems testing;

- the current status for candidate filing and statutory limitations for multicounty districts;
- methods for authenticating users who register online; and
- legislative needs to address issues prior to the upcoming presidential elections.

Approval of Minutes

The minutes from the June meeting were approved by the committee.

Remotely Piloted Vehicles (Drones) Issues

Dennis Zaklan, deputy director, Unmanned Aircraft Systems Flight Test Center, New Mexico State University (NMSU), provided the committee with an overview of the program at NMSU. Mr. Zaklan discussed the differences between unmanned aerial vehicles and unmanned aircraft systems (UAS), along with their uses and capabilities. Mr. Zaklan explained current Federal Aviation Administration (FAA) standards and regulations and the potential for economic development that this industry has for New Mexico. NMSU is planning an educational demonstration on small drones.

Susan Mertes, aviation attorney, discussed the economic and commercial uses for UAS in package delivery. According to Ms. Mertes, there is an \$11.3 billion global market for UAS and a potential \$27 million loss in economic impact for each day that the U.S. delays their usage. Many states are establishing a framework for UAS; about 45 states have some type of laws or regulations. Ms. Mertes cited new ways to regulate drones, including encryption services that would limit what drones can do when flying in particular airspaces. These airspaces would limit functionality of the UAS, such as their camera capabilities. Ms. Mertes believes this is a potential opportunity for states to participate in this new frontier, and they could benefit by creating partnerships with the federal government and corporations that are using drones.

Janet Jarratt, dairy farmer, testified before the committee about her concerns regarding lack of regulation for drones. Ms. Jarratt believes there is little doubt that drones, or UAS, have the potential for great utility. In particular, Ms. Jarratt is interested in the protection of livestock and water supplies for towns. Ms. Jarratt referred to SB 303 (2015), which passed unanimously in the senate. While SB 303 was not comprehensive, she said, it was a good start at providing guidelines for the use of drones to law enforcement, and it provided penalties for the abusive use of drones while allowing provisions for people to legally remove offending drones from their property. The bill deliberately did not address the use of commercial drones. Ms. Jarratt concluded by adding that the legislature has it in its power to assure the protection of its constituents while allowing legal uses of drones, with property owners' permission.

Dorey Richards, former attorney for the U.S. Department of the Interior, added that as technology changes, so must legislation. Some issues are reserved for the states to regulate and protect. The FAA regulates airspace above 400 feet, but the states have the ability to legislate the airspace below that. Ms. Richards noted that the National Park Service has banned the use of drones within parks.

Following the panel presentation, members of the committee and panelists discussed the following topics:

- difficulty in crafting legislation that protects the privacy of citizens and protects livestock;
- the potential in adding drones to existing stalking and harassment laws;
- the differences between UAS and hobbyist toys;
- height restrictions set by the FAA and other federal guidelines regarding information gathering; and
- legislation proposed during the last legislative session dealing with the use of drones and the protection of wildlife.

Recess

The meeting recessed at 4:23 p.m.

Tuesday, July 7

High-Speed Internet Access (Broadband Deployment)

A panel addressed the committee about broadband initiatives in New Mexico. Duncan Sill, general manager, REDI Net, discussed the joint powers agreement that encompasses nine cities and communities in northern New Mexico, including Espanola, Ohkay Owingeh and Santa Fe County. In 2007, a regional economic development plan was developed for northern New Mexico that identified high-speed broadband as a priority. By August 2010, a federal grant of \$10.6 million was awarded to construct REDI Net — a broadband network for the northern portion of the state. The coverage area includes over 140 miles of fiber with point-of-presence facilities. REDI Net is currently developing asset management, network expansion and sector alignments to benefit public safety, education, health care and economic development in the region. In addition to its current public and private partnerships, REDI Net is fostering partnerships with other entities, including UNM and the U.S. Bureau of Reclamation, to promote long-term sustainability. The work plan for FY 2016 includes:

- assisting tribal and local jurisdictions in assessment and development of resources/strategies;
- collaboration with the Public School Facilities Authority (PSFA);
- enhancing coordination with higher education partners and local and tribal entities to leverage potential investments and network development;
- further coordination with telehealth and telemedicine;
- continuing to work with New Mexico stakeholders to address ongoing gaps and investment, including participation with the Jobs Council;
- assisting local and regional communities in broadband service offerings, including active participation with internet service providers; and
- increasing outreach activities.

Laura Gonzales, REDI Net, noted that the cost of broadband in these communities has dropped significantly; the more users on the network, the lower the cost of the broadband. A large effort has been focused on coordinating with all of the local school districts and universities. Ms. Gonzales added that the current setup allows for the adjustment of the speed of the bandwidth during specific times. In particular, schools do not always need high-speed internet, but when students are doing testing that requires large groups to be online at once, the bandwidth can be turned up to fit the demand.

Robert Gorrell, director, PSFA, provided information to the committee regarding the Broadband Deficiencies Correction Program (BDCP). SB 159 (2014) was signed into law to address the critical need, particularly in rural areas, for adequate broadband within public schools across the state. Mr. Gorrell pointed out that reliable broadband is essential for a modern education system with an increased reliance on distance learning, online testing, resources for instruction and homework, cloud hosting and teacher professional development. The BDCP has ongoing collaborations with other state agencies and groups with similar initiatives, including the Department of Information Technology (DoIT), Public Regulation Commission (PRC), Public Education Department and several universities and community colleges. The BDCP has two phases of implementation. Phase 1 includes program development and data collection for approximately 900 public schools statewide, including data centers. The goal of this phase is to determine the most cost-effective solution to deliver scalable, reliable and sustainable broadband service to schools. According to Mr. Gorrell, Phase 1 is currently on schedule and has successfully completed the development of methodology for school surveys and a related web interface. The pilot project has been expanded to 35 schools, including the Albuquerque Public Schools data center. Phase 2 will be the corrections phase and is scheduled to begin in early 2016. Mr. Gorrell concluded that the BDCP is on track and has strong momentum; most importantly, the program has a clear direction from leadership that all participants collaborate and eliminate potential duplication, which remains essential to efficient solutions.

Jacqueline Miller, deputy secretary, DoIT, presented the department's latest broadband initiatives to the STTC. Ms. Miller underscored the importance of broadband as an essential utility in promoting economic development. Different technology types, such as copper wirelines and fiber, can be used to deliver broadband. In some instances, it is necessary to use existing infrastructure to set up broadband; each area of service is different.

Ms. Miller outlined the DoIT's initiatives and the current options for the state moving forward:

- the Statewide Interoperable Radio Communications Internet Transport System, including the conversion of state telecom sites to digital microwave;
- the Public Safety Broadband Network, addressing the needs of first responders;
- network operation services, centralizing network monitoring services;
- E-Rate — federal support for schools, libraries and health facilities; and
- the New Mexico Broadband Program, a central broadband planning entity.

After the panel presentation, members of the committee asked several questions regarding the broadband initiatives in New Mexico. The following points were discussed by the presenters and the STTC:

- issues regarding specific communities in northern New Mexico that lack connectivity to the REDI Net network;
- statewide mapping of broadband infrastructure and the need for continual funding to continue the mapping process;
- collaboration efforts by service providers;
- eligibility status for E-Rate funding for REDI Net;
- the need to have broadband available for students not only at school, but also at home; and
- the importance of fostering public-private partnerships in establishing broadband networks.

Telecommunications Policy

Katherine Martinez, local government affairs director, CenturyLink, Johnny Montoya, regulatory affairs director, CenturyLink, and Leo Baca, director, state legislative affairs, CenturyLink, told the committee that investment in broadband is imperative to create a regionally competitive environment for economic investors. They pointed out that New Mexico ranks in the bottom quarter of states with minimally adequate broadband and that there is a significant lack of broadband in rural areas, where 25% of the state's population and 39% of the state's businesses reside. They reported on the progress of their company in the deployment of broadband, including:

- fiber extended by CenturyLink to 295 outstate/rural locations;
- \$4 million year-to-date in overall fiber expansion statewide;
- \$1.3 million year-to-date in fiber to the tower for cellular towers;
- increased broadband accessibility beyond the Albuquerque metro area;
- replacement of an old copper network with a fiber network for increased broadband accessibility on the Pueblo of Acoma;
- internet access from CenturyLink in 94% of households in Dona Ana County and qualification for seven megabytes per second (Mbps) or higher internet speeds for 78% of Dona Ana County customers;
- internet access from CenturyLink in 93% of households in McKinley County and qualification for seven Mbps or higher internet speeds for 53% of McKinley County customers; and
- internet access from CenturyLink in 92.3% of households in Socorro and qualification for 12 Mbps or higher internet speeds for 41.4% of Socorro customers.

The CenturyLink presenters said that the most costly issue facing broadband expansion is right-of-way access and that one of the reasons for the costliness is that state law prohibits counties from collecting franchise fees, which poses difficulties when counties seek to recover

costs for right-of-way use. Counties are unable to determine actual costs for individual utilities when multiple parties are within the right of way. It becomes even more costly when crossing tribal lands, where negotiations for right-of-way use can take years, they testified. Public-private partnerships are good ways to work through some of these obstacles and are better alternatives to government-owned networks, which, they said, have a high failure rate and ultimately cost taxpayers millions of dollars.

In March 2014, CenturyLink filed a motion with the PRC requesting to be regulated as a mid-size carrier, and, on April 8, 2015, the PRC ruled that CenturyLink is a mid-size carrier. The PRC then issued a notice of developing revised mid-size carrier rules. However, the PRC recently suspended that rulemaking effort.

Taking up the broadband issue again, the presenters told the committee about Public Regulation Commissioner Sandy Jones issuing a notice of inquiry and establishing a task force to look into expanding broadband coverage in New Mexico. The task force was to recommend an action plan on July 8, after the committee meeting, that will address minimum upload and download speeds; a statewide mapping tool to identify unserved and underserved areas in New Mexico; regulatory and legal barriers that may exist; and recommendations for funding opportunities.

The presenters concluded their remarks by summarizing the Federal Communications Commission (FCC) action on its Connect America Fund. They testified that this fund had strong support from the New Mexico congressional delegation and that on April 29, 2015, the FCC announced state-level offers to companies. CenturyLink was offered approximately \$10.9 million in annual Connect America Fund support in its New Mexico service area, but fund requirements include internet speeds of 10 Mbps download and one Mbps upload to over 25,000 homes and businesses in high-cost areas over a six-year period. CenturyLink is currently evaluating the offer and has until August 27, 2015 to accept or decline the funding. If the company declines funding, there will be a future reverse auction to allocate the money.

Discussion following the presentation included:

- nuisance telemarketing calls to businesses and how to stop or prohibit robo-dialing solicitations;
- simultaneous dialing;
- federal funding for the "last mile" of broadband deployment;
- a broadband task force report to the committee at a future meeting;
- hacker emails that appear to be from CenturyLink;
- "unspam";
- CenturyLink service information by county;
- the location of the PRC hearing on the broadband task force; and
- public-private partnerships for broadband deployment.

Adjournment

There being no further business before the committee, the second meeting of the STTC adjourned at 12:15 p.m.